

Middle Term Task Lists

FEM-IB Debugging

Debugging Plan of 2nd FEM-IB in Taiwan

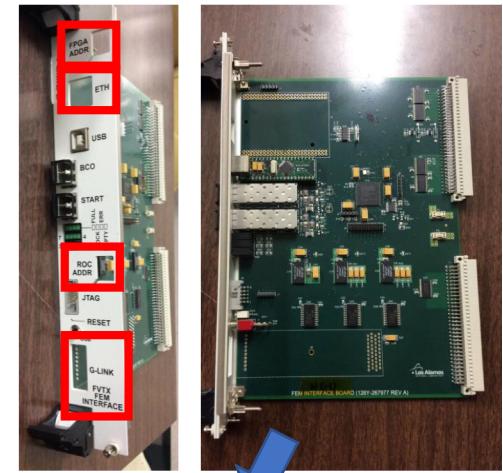
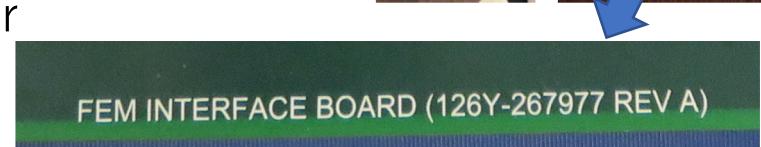
- Consulted with FVTX experts
- No one recall if this FEM-IB used to work, but no obvious reason of incompatibility with the standalone.
- Suggested to search for any record in DB and e-log (not available now).
- Suggested debugging procedure.
 - Whether you can program the FPGA?
 - Is the CLK/START it distributes looks OK?
 - Does it and its FEM respond to slow control command?
 - And you can run some test signal to debug pings which is usually very helpful.
- The FEM-IB is to be debugged at NWU or BNL once institutes are resumed normal operation.

bad FEM IB 1

Things not attached

(In the test at NWU, we didn't use any NWU's things for below places.)

- FPGA ADDR
- ETH
- ROC ADDR
- G-LINK



FVTX Electronics database

phenix.bnl.gov

Explore Rocky Po... Rocky Point Natu... LV Bulk PS Count... 特別定額給付金に... Stave - sPHENIX Upload file - sPHENIX coresoftware/PHENIX Ssh access to Int... INTT Bi-weekly... FEM Interface bo...

FEM Interface Boards

| ID | soft ID | assembly | power up | FPGA prog. | fiber comm. | links ¹ | location | status |
|----|---------|-------------------------------|-----------------------------|--|--|--------------------|----------|---|
| 1 | H | MB 2011-06-15 Done -> OK | 2011-07-21 Done -> OK | MLB 2011-07-21 Done -> OK code: v0.01Jan10 | xxx 2011-07-21 slow: Done -> OK data: not yet done | (none) | | entry clobbered final ok |
| 2 | H | | | MLB 2011-07-21 Done -> OK | xxx 2011-07-21 slow: Done -> OK data: not yet done | (none) | 1008 | entry clobbered final ok |
| 3 | H | 1 SB 2011-07-18 Done -> OK | SB 2011-07-18 Done -> OK | SB 2011-07-18 Done -> OK code: v0.01Jan10 | SB 2011-07-18 slow: Done -> OK data: not yet done | | 1008 | Sent to BNL for Martin DAQ tests |
| 4 | H | 2 SB 2011-07-19 Done -> OK | SB 2011-07-19 Done -> OK | SB 2011-07-19 Done -> OK code: v0.01Jan10 | SB 2011-07-19 slow: Done -> OK data: not yet done | | UNM | All ok |
| 5 | H | 3 SB 2011-08-03 Done -> OK | SB 2011-08-03 Done -> OK | SB 2011-08-03 Done -> OK code: v0.01Jan10 | SB 2011-08-03 slow: Done -> OK data: not yet done | | UNM | All ok |
| 6 | H | 4 SB 2011-08-03 Done -> OK | SB 2011-08-03 Done -> OK | SB 2011-08-03 Done -> OK code: v0.01Jan10 | SB 2011-08-03 slow: Done -> OK data: not yet done | | UNM | OK Had issue of programming from EEPROM at first, but seem to have recovered. Some pins on J5 had been bent and shorted, this may be possible reason |

¹Numbers in brackets [nnn] link to eLog entries.

SUBMIT to Data Base

<https://www.phenix.bnl.gov/WWW/p/draft/fvtx/WedgeAssembly/Database/daqtest.php?from=0>

INTT GEANT Model

Present Status

- Takahito completed INTT GEANT model modification.
 - Updated material budget of Stave and HDI
 - Reorganized the codes to avoid scattered geometry parameters here and there. Now the parameters are gathered in one program.
 - Kick start instruction is available in wiki:
https://wiki.bnl.gov/sPHENIX/index.php/INTT_GEANT_model
 - The developer is succeeded to Genki. Takahito now works for Tsukuba University.
 - Itaru will report the modification to the tracking group once he confirm the change.

Material Budget Before/After

| | Thickness [mm] | X/X0 [%] |
|----------------|----------------|-------------|
| Silicon Sensor | 0.32 | 0.34 |
| HDI | 0.473 | 0.49 |
| Stave | 0.4 | 0.25 |
| PGS | 0.2 | |
| Total | | 1.08 |



| | Thickness [mm] | X/X0 [%] |
|----------------|----------------|-------------|
| Silicon Sensor | 0.32 | 0.34 |
| HDI | 0.473 | 0.39 |
| Stave | 0.6 | 0.33 |
| Total | | 1.06 |

- Stave thickness is increased by 200um though, the radiation length is compensated by decreased HDI material.
- Copper layer HDI GEANT Model was **52um** (as of Feb.14,2020), to be updated to **37.6um**